

PREPRODUCTION INITIATIVE-NELP IMPROVED STENCILING AND MARKING SYSTEM TEST PLAN

**SITES: NS MAYPORT, NAS BRUNSWICK, JRB NEW ORLEANS, NAS
NORTH ISLAND**

1.0 OBJECTIVE

This test plan describes the data collection procedures for acquiring performance data on stenciling aircraft support equipment (SE).

2.0 DESCRIPTION

Support equipment must be marked with information such as part numbers and operational instructions. The traditional method of marking equipment requires a stencil, paint and masking procedures, and generates paint wastes (e.g., spray cans, masking tape, rags, and spent solvent) that must be disposed of as hazardous waste. Equipment is commercially available to generate and print labels, markings, signs, and instruction plates on a variety of adhesive-backed materials without generating any hazardous wastes or using any hazardous materials. Such systems can provide all of the marking, stenciling, and sign-making needs for an activity or ship.

Some sites already use adhesive stencils such as the Brother P-Touch label maker or professional stencils supplied by vendors. Reports indicate that P-Touch labels do not hold up well outdoors and that procuring stencils from vendors is not cost-effective.

3.0 TEST PLAN

This test plan defines procedures for acquiring test data that will be used to evaluate the performance of paintless stencils or markings.

3.1 Approach

The Roland Color Camm Pro and the Gerber Edge are two adhesive stencilmaking devices that, when used in conjunction with a desktop computer, can generate and print labels and stencils. Stencil samples have been subjected to environmental conditions (i.e., salt, fog, etc.) to identify the optimal materials for Navy applications. Additional samples, as dictated by site equipment marking requirements, have been sent to NS Mayport, NAS Brunswick, and JRB New Orleans for field testing on selected in-service SE. NAWC Lakehurst engineers have generated the stencils for these sites and, in the process, determined any operational differences between the Roland and Gerber units. NAS North Island has been selected to conduct field testing of the Roland unit.

All sites will provide stencil baseline data on Data Sheet 1 and stencil wearability data on Data Sheet 2. In addition, NAS North Island will complete Data Sheet 3 concerning the operability of the unit.

3.2 Requirements

Hardware (NAS North Island only)

- Roland Color Camm Pro
- Desktop computer with the following minimum software requirements: 486/66, 16-MB RAM, 15-Mb hard drive, Windows 3.x, CD-ROM

Consumables

- Vinyl (adhesive-backed)
- Transfer tape
- Application fluid

3.3 Procedures

The following procedures describe how to prepare equipment for application, apply the stencil to ensure good adherence, and collect data for evaluation.

3.3.1 Surface Cleaning and Stencil Application Instructions

The recommended procedure for applying stencils to various surfaces includes the following steps.

- Shake the application fluid well before using.
- Using the application fluid and a paper towel, clean the surface thoroughly. (For glass surfaces, clean twice to remove any residue from the glass cleaner.)
- Apply the fluid again, remove the backing paper from the vinyl, and apply it to the wet area.
- Position and squeegee firmly. The vinyl is now bonding to the surface.
- If transfer tape is used, wait 30-90 seconds. Spray the transfer tape with application fluid and squeegee again.
- Remove the wet transfer tape by pulling down the top corner at a 45-degree angle.
- Wipe the area dry to remove excess fluid and streaks.

3.3.2 Instructions for Completing Data Sheet 1, Baseline Data

The data collected on this sheet will help determine the cost savings of the improved stenciling process versus previous methods. Fill in the blanks with the appropriate information, as well as any additional applicable data.

3.3.3 *Instructions for Completing Data Sheet 2, Stencil Wearability*

These data will be used to determine the effectiveness of the new stenciling process. By rating various stencil characteristics, any areas that require improvement can be pinpointed easily.

The initial inspection data sheet should be completed for a minimum of four different pieces of SE. The type of equipment, number of units stenciled, and appropriate rating (1 = worst, 10 = best) should be filled in.

Three months after the initial inspection, a second set of categories should be rated. This inspection interval will continue for one year. After each of the four evaluations, the data sheet should be faxed to the point of contact designated on the data sheet.

3.3.4 *Instructions for Completing Data Sheet 3, Unit Operability*

This data sheet is for use at NAS North Island only. All questions should be answered, and any additional applicable information should be included.

4.0 REPORTING

The data sheets are a concise method of data collection. Data Sheet 2 should be completed for the initial application and once every three months thereafter for one year. The final report will include detailed results and observations, assess the efficiency and cost-effectiveness of the new stenciling process, and evaluate its ability to satisfy site stenciling requirements.

**DATA SHEET 1
BASELINE DATA**

NAME: _____ **DATE** _____

SITE: _____

Please fax to: 609-667-7586 (Attention: Rick Christ)

PREVIOUS METHOD: Spray Paint with Stencil Cutouts

Consumables

Quantity of spray cans used per year: _____

Cost per spray can: _____

Cost per year: _____

Labor

_____ number of stencil cutouts per year

_____ hours to manufacture stencil cutout

_____ hours/SE for surface preparation, applying cardboard or metal stencils,
painting, cleanup

_____ pieces of SE

Labor class (e.g., E-5) _____

Waste Disposal

Paint & solvent-soaked rags (\$/lb) _____

Aerosol cans (\$/lb) _____

_____ lb of rags per year for stenciling SE

_____ lb of aerosol cans per year

CURRENT METHOD – Adhesive Stencils

Consumables

_____ stencils/month

Labor

_____ hours per stencil

Labor class (e.g., E-5) _____

**DATA SHEET 2
STENCIL
WEARABILITY**

NAME: _____ **DATE** _____

SITE: _____

Equipment (e.g., tow tractor) _____ **QTY** _____

Please fax to: 609-667-7586 (Attention: Rick Christ)

Please provide the following information to determine the effectiveness of the new stenciling system. For each evaluation criterion, circle the number that best describes your opinion of the stencil (1 = worst, 10 = best).

INITIAL INSPECTION

Ease of Application (Is it easy to apply the stencil or time-consuming?)

1 2 3 4 5 6 7 8 9 10

Visual Effectiveness (Does the stencil have better or worse visual effectiveness than the previous method?)

1 2 3 4 5 6 7 8 9 10

Initial Adherence (Does the stencil seem to be secured appropriately?)

1 2 3 4 5 6 7 8 9 10

Additional Comments (other observations, recommended supplies, etc.)

THREE-MONTH INSPECTION

Degree of Fading (Has the stencil color maintained its initial brilliance?)

1 2 3 4 5 6 7 8 9 10

Quality of Adherence (Does the stencil still seem as secure as when first applied?)

1 2 3 4 5 6 7 8 9 10

Additional Comments

**DATA SHEET 2
(PAGE 2)
STENCIL
WEARABILITY**

NAME: _____ **DATE** _____

SITE: _____

Please fax to: 609-667-7586 (Attention: Rick Christ)

SIX-MONTH INSPECTION

Degree of Fading (Has the stencil color maintained its initial brilliance?)

1 2 3 4 5 6 7 8 9 10

Quality of Adherence (Does the stencil still seem as secure as when first applied?)

1 2 3 4 5 6 7 8 9 10

Additional Comments

ONE-YEAR (FINAL) INSPECTION

Degree of Fading (Has the stencil color maintained its initial brilliance?)

1 2 3 4 5 6 7 8 9 10

Quality of Adherence (Does the stencil still seem as secure as when first applied?)

1 2 3 4 5 6 7 8 9 10

Additional Comments

DATA SHEET 3
UNIT OPERABILITY

NAME: _____ **DATE** _____

SITE: _____

Please fax to: 609-667-7586 (Attention: Rick Christ)

Please provide the following information to determine the effectiveness of the new stenciling system.

1. How would you describe the ease of use of the unit? _____

2. How would you describe the ease of use of the software package? _____

3. How many stencils do you generate per week? _____

SE_____ Other_____
4. How much vinyl do you use per week (best guess)? _____

SE_____ Other_____
5. How many resin ribbon color cartridges do you use per month (best guess)? _____

SE_____ Other_____
6. What is the most difficult task when creating a stencil? _____

7. Do you feel this unit would be a good overall addition to Naval Air Stations for use with SE?

☐ Yes ☐ No